

(72) GRADWELL, Bruce, CA

(71) GRADWELL, Bruce, CA

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(54) **RACCORD PIVOTANT POUR RELIER UN FLEXIBLE A  
DEPRESSION A UN OUTIL**

(54) **VACUUM HOSE TO TOOL SWIVEL CONNECTOR**

(57) A connector for connecting a vacuum hose to a hand tool includes a housing with connector members which swivel at opposite ends of the housing to allow angular deflection and coaxial rotation of the tool in relation to the vacuum hose. The connector members have internal air flow passages in registration with one another through the housing.

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ABSTRACT OF THE DISCLOSURE

A connector for connecting a vacuum hose to a hand tool includes a housing with connector members which swivel at opposite ends of the housing to allow angular deflection and coaxial rotation of the tool in relation to the vacuum hose. The connector members have internal air flow passages in registration with one another through the housing.

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TITLE: VACUUM HOSE TO TOOL SWIVEL CONNECTOR

FIELD OF THE INVENTION

5 The present invention relates to a connector member which provides a swivel connection between a hand held tool and a vacuum hose which draws dust and other debris from the hand tool.

10 BACKGROUND OF THE INVENTION

The control of dust and other debris created by hand tools such as sanders and abraders have become a very important issue from a workman's safety standpoint. It is currently known to use a vacuum hose to draw the dust  
15 created by the tool away from the working area.

Again, as is currently known, the vacuum hose is connected directly to the hand tool and the movement of the tool relies on the flexibility of the vacuum hose.  
20 Although this does allow for some manipulation of the tool, the resistance provided by the vacuum hose does inhibit tool movement adding to operation fatigue and in some cases producing strain injuries

25 SUMMARY OF THE PRESENT INVENTION

The present invention provides a connector member for connecting a vacuum hose to a hand tool. The connector comprises a housing with connector members which swivel at opposite ends of the housing. One of these connector  
30 members connects to the hand tool, the other connector member connects to the vacuum hose. The connectors have internal air flow passages in registration with one another through the housing.

35 The connector of the present invention provides a path of vacuum from the tool to the vacuum hose while at

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the same time making the hand tool much more maneuverable than it would be if connected directly to the vacuum hose. This therefore substantially reduces fatigue and the possibility of injury of the operator using the hand tool.

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#### BRIEF DESCRIPTION OF THE DRAWINGS

The above as well as other advantages and features of the present invention will be described in greater detail according to the preferred embodiments of the present invention in which;

Figure 1 is a perspective view of a hand tool connected to a vacuum hose by a swivel connector made in accordance with a preferred embodiment of the present invention;

Figure 2 is a sectional view through the swivel connector of Figure 1;

Figure 3 is an exploded perspective view of the swivel connector of Figure 2.

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#### DETAILED DESCRIPTION ACCORDING TO THE PREFERRED EMBODIMENTS OF THE PRESENT INVENTION IN WHICH:

Figure 1 shows a hand held tool 1 secured to a vacuum hose 3 by means of a swivel connector generally indicated at 5. Tool 1 could be a sander, a polisher or any other type of dust producing abrading type tool.

Tool 1 produces dust-like particles which are trapped internally of the tool by the tool skirt. Therefore, rather than spreading into the surrounding environment, the dust particles are drawn out of the abrader by the vacuum hose.

The details of swivel connector 5 are best seen having reference to Figures 2 and 3 of the drawings. The

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swivel connector is formed by a hollow cylindrical housing 7 with two connectors members generally indicated at 15 and 35 respectively extending out from opposite ends of the centrally located housing.

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Connector member 15 has a main hollow tubular body portion 17 terminated at its outer end with a reduced diameter neck 19. The inner end of tubular portion 17 is provided with a small opening 21. A ball 23 provided with its own small opening 25 slides over the inner end of tube 17 where the opening in the ball aligns with the opening in the tube. A pin 27 is then fitted through the two openings. This locks the ball with the tube.

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The assembled ball and tube are then located within a ring 29. Small lips 33 are provided to opposite ends of the ring. The ring is split at 31 to allow insertion of the ball which is then trapped in the ring by the lips 33. This provides a ball and socket fitting of the tube with the ring.

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Ring 29 is then press fitted within the open end 9 of housing 7. The housing, as best seen in Figure 2, has a thickened central region which provides a stop against which ring 29 is seated.

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The split in the ring 29 allows the ring to slightly collapse as it is being forced into the center housing. Once in position, the ring springs back outwardly to maintain a friction fit with the housing. If required, the ring can be treated with adhesives to additionally add to the securing of the ring within the housing.

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Connector member 35 comprises a main hollow tubular portion 37 provided with a small hole 39 towards the inner end and a raised collar 41 towards the outer end of the

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tubular portion. A second ball 23 fits over the inner end of tubular portion 37 where the ball opening 25 aligns with the tube opening 39. Pin 27 is again used to secure the ball with the tube. Ball 23 on connector member 35 fits  
5 into its own split ring 29 in the identical manner to that earlier described and the split ring on connector member 35 locates in the open end 11 of housing 7 again in the identical manner to that earlier described.

10 With the above construction, the connector members swivel and rotate relative to the housing of the connector.

The reduced neck region 19 of connector member 15 fits within and is held by tool collar 2 which leads  
15 directly to the interior of the tool. Plate 45 has a further opening 49 which locates over a post on the tool.

The outer end of connector member 35 is forced as far as collar 41 into neck 4 on vacuum hose 3 as seen in  
20 Figure 2 of the drawings. This completes the connection of the vacuum hose through the swivel connector with the interior of the tool.

As will clearly be seen in Figure 2, the open ends  
25 of the two connector members register with one another through the hollow center housing. As will also be seen in Figure 2, the swivel connector has an extremely low profile where both of the connector members are smaller in diameter than the center housing. Accordingly, the swivel connector  
30 in no way impedes with the hand or the wrist of the operator using the tool as is well shown in Figure 1.

As is also shown in Figure 1 and in Figure 2,  
swivel connector 5 enables the hand tool to easily be moved  
35 to different angles and to be swiveled coaxially relative to the vacuum hose while maintaining a vacuum passage from

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the hand tool to the hose. The moving of the tool does not  
rely on the flexibility of the hose but rather takes place  
at the swivels of the connector. As a result of the  
elongated length of the connector members, very little  
5 swivel is required to produce substantial movement of the  
tool produced by the lever effect of the connector members.  
This feature is further enhanced by the use of two  
connector members, one to each end of the shorter center  
housing.

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Swivel connector 5 can be made from various  
different materials including metallic and plastic  
materials. The particular materials chosen need to have  
sufficient strength to maintain the securing of the ball  
15 and socket joints within the center housing and to also  
maintain connections with both the tool and the vacuum  
hose.

Although various preferred embodiments of the  
20 present invention have been described in detail, it will be  
appreciated by those skilled in the art that variations may  
be made without departing from the spirit of the invention  
or the scope of the appended claims.

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THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE  
PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

- 5 1. A connector for connecting a vacuum hose to a hand  
tool, said connector comprising a housing with connector  
members which swivel and rotate coaxially at opposite ends  
of said housing, said connector members having internal air  
flow passages in registration with one another through said  
10 housing.
2. A connector as claimed in Claim 1, wherein each of  
said connector members has an outside diameter less than  
that of said housing.
- 15 3. A connector as claimed in Claim 2, wherein said  
housing is located centrally of said connector.
4. A connector as claimed in Claim 1 made from a  
20 metallic material.
5. A connector as claimed in Claim 1 made from a  
plastic material.
- 25 6. A connector as claimed in Claim 1, wherein said  
housing comprises a rigid hollow cylinder.
7. A connector as claimed in Claim 6 wherein said  
connector members comprise rigid hollow tubes.
- 30 8. A connector as claimed in Claim 7, wherein said  
tubes are narrow and elongated relative to said  
cylindrical.
- 35 9. A connector as claimed in Claim 7, wherein said  
tubes align with one another through said hollow cylinder.



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10. A connector member as claimed in Claim 7, wherein said tubes have end regions held by ball and socket joints within said hollow cylinder.

FIG. 1.

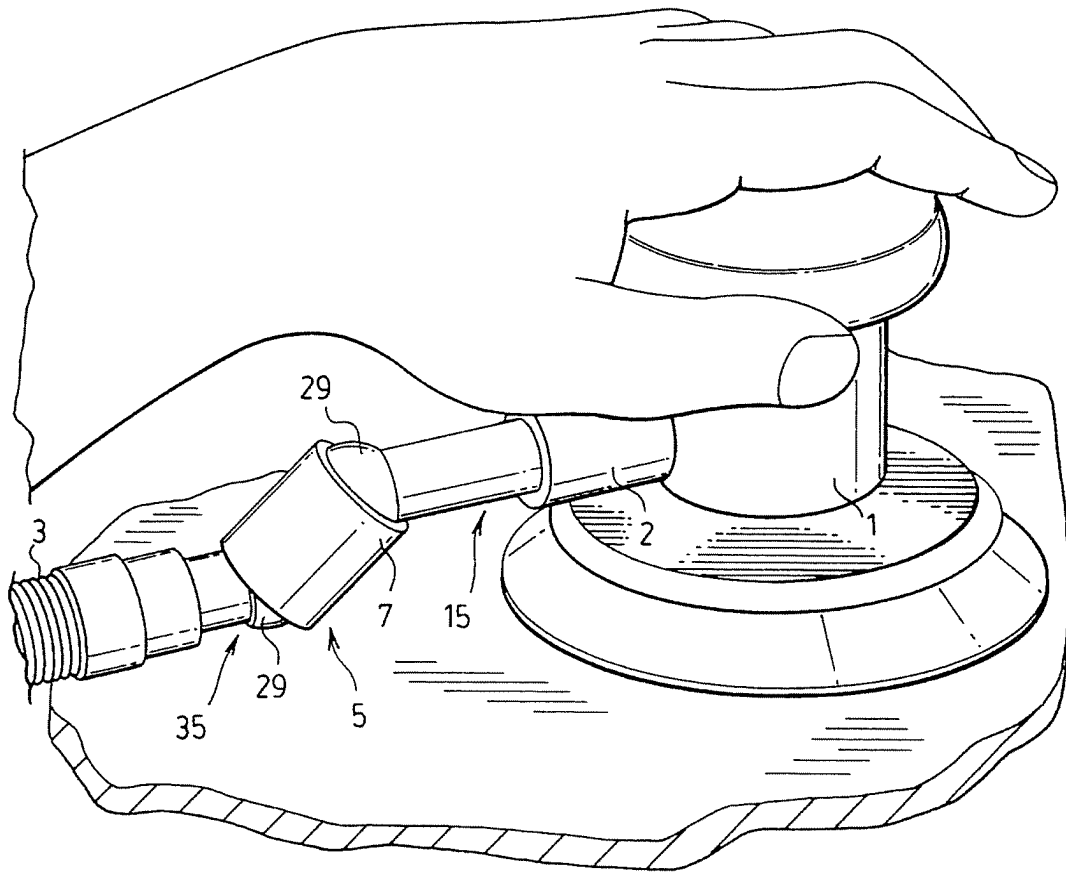


FIG. 2.

